DOCUMENT RESUME

ED 323 245 TM 015 450

AUTHOR Banerji, Madhabi
TITLE Longitudinal Effects of Retention and Promotion in Kindergarten on Academic Achievement.
PUB DATE 88
NOTE 16p.
PUB TYPE Journal Articles (080) -- Reports - Research/Technical (143)
JOURNAL CIT Florida Journal of Educational Research; v30 n1 p59-72 Fall 1988

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; Child Development; Comparative Analysis; *Grade Repetition; Individualized Education Programs; *Kindergarten Children; Longitudinal Studies; Mathematics Achievement; Primary Education; *Program Evaluation; Reading Achievement; *Remedial Programs; Student Development; *Student Promotion
IDENTIFIERS Pasco County School District FL; *Primary Education Program FL; School Effects

ABSTRACT

Same-year and same-grade comparisons were made of a matched sample of students who had been retained in kindergarten for a second year and who had been promoted after 1 year from kindergarten within the Pasco County (Florida) School System. Retained subjects (n=34) consisted of kindergarten students enrolled in the system's developmental kindergartens during the 1984-85 academic year. The developmental program constitutes a component of the state-legislated Primary Education Program for at-risk students. A matched group of non-retained subjects (n=33) was used as a control. Longitudinal performance in first, second, and third grades was studied using standardized test scores in reading and mathematics, and students' performances were compared using multivariate analyses and Bonferroni comparisons. For both the same-year and the same-grade comparisons, significant group effects were found in reading; however, significant group effects were found in mathematics only for same-grade comparisons. Significant interaction effects were found for both disciplines. Results underscore the possibility that an individualized education plan during the retained year could be partly responsible for the improvement in performance for retainees. Five data tables and four graphs are included. (Author/TJH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED323245

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

☑ This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Lou M. Carey

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

LONGITUDINAL EFFECTS OF RETENTION AND PROMOTION IN KINDERGARTEN ON ACADEMIC ACHIEVEMENT

Madhabi Banerji
District School Board of Pasco County

TM015450

BEST COPY AVAILABLE

Florida Journal of
Educational Research
Fall, 1988, Vol. 30
No. 1, Pp.59-72

Longitudinal Effects of Retention and Promotion in Kindergarten on Academic Achievement

Madhabi Banerji
District School Board of Pasco County

ABSTRACT. Same-year and same-grade comparisons were made of a matched sample of students retained in and promoted after one year from kindergarten. Longitudinal performance in first, second, and third grades was studied using standardized test scores in reading and mathematics, and students' performances were compared using multivariate analyses and Bonferroni comparisons. For both the same-year and the same-grade comparisons, significant group effects were found in reading; however, significant group effects were found in mathematics only for same grade comparisons. Significant interaction effects were found for both disciplines.

A topic debated at length in the field of early childhood education centers on the policy of keeping children in kindergarten or special transition classes for an additional year when they are considered unready for first grade. Central to debates on such a policy is the question of the long-term effects of retention. While the importance of this question has magnified with the recent increase in two-year kindergarten programs, controlled research in the area is limited (Shepard & Smith, 1986). The purpose of this study was to examine the longitudinal effects of a two-year kindergarten on the academic achievement of children identified as developmentally delayed and therefore at risk.

Two general research questions guided the study.

1. How do children from a two-year kindergarten compare in academic performance with a matched but promoted group from a traditional kindergarten, in a three year follow-up after their first year in

TM015450

2. Are there observable differences in standardized test performance in reading and mathematics between the two groups on: (1) **same-year comparisons**, where the retainees are a year older and take a lower level test, and (2) **same-grade comparisons**, where the retainees are a year older but take the same level test as their promoted grade-peers?

Same-year and same-grade comparisons were designed to investigate respectively, (a) if the extra year of kindergarten improves relative standing of retainees in a norm group that is younger than they and (b) if the retained students perform as well as their promoted peers when they eventually reach the same grade level. This question was recently investigated on samples of retainees from grades one through three (Peterson, DeGracie, & Ayabe, 1987). It was adapted for the present study to determine whether the outcomes reported in the previous study would generalize to the kindergarten level.

Literature on Retention

Past reviews of studies on retention have largely confirmed the negative effects of nonpromotion in the areas of achievement as well as social and emotional adjustment (Jackson, 1975; Holmes & Mathews, 1984). Jackson (1975) concluded that the existing research on retention did not provide support for such practices in schools and stressed the need for more experimental studies in the area. The results of a meta-analysis of retention studies (Holmes & Mathews, 1984) endorsed the conviction that "the potential for negative effects (of nonpromotion) consistently outweighs the positive outcomes" (p. 232). They further reported that the promoted group, on average, performed .44 standard deviations higher than the retained group on various measures of achievement. Mean effect sizes favoring promoted students were also reported in the areas of personal adjustment, self-concept, and attitude towards school. Separate analyses of controlled studies that used matched-group designs did not yield results that were markedly different.

In their recent synthesis of research pertinent to extended kindergartens, Shepard & Smith (1986) concluded that children who repeat kindergarten do not out-perform comparison students. They stated that "there is no achievement benefit in retaining a child in kindergarten or in first grade and, regardless of how well the extra year is presented to the child, the child still pays an emotional cost" (p. 80).

A moot point in this regard would be whether repeating a given grade is technically the same as being in a graded two-year program. A difference in the operational definition of retention could conceivably

alter consequences in terms of student performance. Two-year kindergartens have, by unspoken convention, been classified in the literature as kindergarten retention, regardless of differences in goals, structure and curriculum content (Shepard & Smith, 1985; Troidl, 1984). For the purposes of simplicity, the same terminology will be used in this report. However, operational definition of the terms, retention and promotion, as used in the study,will also be provided to aid in the interpretation of results.

The most recent study that investigated long-term impact of retention/promotion decisions on the academic achievement of primary grade students did not yield the singularly negative results of previous studies (Peterson, Degracie, & Ayabe, 1987). Instead, it showed that second and third grade students do experience sustained benefits from retention. Retained students generally demonstrated large gains on normal curve equivalent scores (NCE) at the end of the retained year. However, their advantage in performance diminished over time and became small after three years. In the design of the study, retained and promoted groups were matched on sex, ethnicity, chronological age, and standardized achievement test scores in Reading, Language and Mathematics. Same-year and same-grade comparisons were conducted using multivariate analysis of variance followed by univariate contrasts. In conclusion, the authors stated that although they "failed to find convincing evidence that retention is beneficial, (their) results (did not) indicate that retention is harmful as other studies have found" (Peterson, DeGracie, & Ayabe, 1987, p. 117).

Further, another interesting contradiction with past research was found in their study with respect to first grade results. Previously, researchers have concluded that retention produces greater benefits in the earlier grades and have recommended that grade repetition be done with younger children rather than older ones, while Peterson et. al. (1987) were unable to detect positive effects of retention on first grade retainees.

This contradiction provided yet another basis for the present investigation. The design and analyses employed in the Peterson et. al. (1987) study served as a general model for this one. Differences in sampling methods and analyses that are specific to the present study are pointed out where appropriate.

The Kindergarten Program

The Pasco County School System in Florida has a Developmental Kindergarten Program in operation which forms a component of the state-legislated Primary Education Program (PREP). The objectives of

PREP include: (1) the early identification of existing and potential problems in children, (2) provision of individualized programs based on identified needs, and (3) the reduction of the risk of student failure and the need for remediation beyond the primary grades (see PREP Manual, District School Board of Pasco County, 1987). Through PREP, individualized educational plans are developed to optimize students' chances for school success. At the kindergarten level, the PREP strategy is primarily developmental.

To meet the first PREP objective, screenings are conducted in four areas: maturational, academic, social/behavioral,and physical, followed by the development of individualized instructional strategies for each child. Assessments begin in kindergarten with a screening of behaviors on the Gesell School Readiness Screening Test and two to eight weeks of in-class observation of children by their classroom teachers. The screening results are used to place children in one of three different levels of kindergarten designed to meet their differential needs at varying developmental levels.

The lowest level of kindergarten, K1, consists of students who are identified as developmentally younger than typical five year olds. These children go through a graded two-year kindergarten program before they begin first grade. The K1 curriculum emphasizes social and emotional development in the first year, followed by a gradual transition to a more structured, academic orientation in the second (see K1 Curriculum Guide, District School Board of Pasco County, 1987). Retention, is therefore automatic for students within the K1 program.

Prior to initiating this program, Pasco County did not have kindergartens with the individualized, developmental approach. No assessments or placement occurred in these classrooms. Instead, students were heterogeneously grouped in a single class, and emphasis was placed on academic readiness skills. Except in rare cases, all students moved to the first grade after completing one year in kindergarten.

Definition of Terms

Retention: In this study, a retained child is one who moved through an individualized developmental curriculum that is graded from relatively unstructured to structured and that extends over a period of two school years.

Promotion: In this study, a promoted child is one who successfully completed one year in a traditional kindergarten and moved on to the first grade in the following year. Those students from the traditional kindergarten program who repeated the grade were excluded from this

study due to curricular and instructional differences between the two programs.

Method

Sample

The retained sample consisted of K1 students who were enrolled in developmental kindergartens during the 1984-85 academic year. Four schools formally pilot-tested the program that year. As most other schools in the system were found to have informally adopted the program that year, an uncontaminated comparison group was not available from the same year. The comparison group of promoted children was instead taken from traditional kindergartens that were in operation in the district during the previous year, 1983-84. All schools from which the samples were drawn were from the Pasco County School District.

Students from retained and promoted groups were individually matched on five variables: chronological age (CA), socioeconomic status (SES), sex, ethnicity, and total reading scores on the Stanford Early School Achievement Test (SESAT), which is taken at the end of the first kindergarten year. A crude measure of SES was obtained based on whether a child was on free or reduced lunch. In arriving at the matched groups, priority was placed on chronological age, sex, race and SES. Matching on SESAT scores was accomplished in 67 percent of the cases within $\pm$ 20 scaled score points. The total sample consisted of 34 matched pairs (N=68), with more or less complete data on Mathematics and Reading Achievement test scores. This enabled a three year follow-up after kindergarten. Pairwise deletion of cases was not done when missing data were encountered. T-tests and chi- square analyses were conducted with the final samples to check for equivalence between groups before longitudinal comparisons were attempted.

Characteristics of the final sample on the matching variables are given in Table 1. As is evident, a good match was obtained on all but the cognitive measure. On the SESAT scores, the promoted group showed an advantage that was statistically significant and translated to 3.3 NCE points. This discrepancy must be considered a limitation and be borne in mind when the outcomes of the study are evaluated.

Analyses

As mentioned previously, two methods of comparison were conducted on retained versus promoted groups. In the same-year

Table 1 Characteristics of the Final Sample:
Descriptive Statistics on Matching Variables

Variable	Group	Statistics		
		Mean	SD	N
Chronological Age in months	Retained	64.6	3.54	34
	Promoted	64.8	3.40	33NS
SESAT Total Reading (After one year in K)	Retained	410	13.14	34
	Promoted	422	17.44	33*
		High	Low	N
SES	Retained	50%	50%	34
	Promoted	52%	48%	33
	chi square - .015 p = .901			
Sex		Male	Female	N
	Retained	62%	38%	34
	Promoted	64%	36%	33
	chi square - .025 p = .874			
Race		White	Black	N
	Retained	96.8%	3.2%	34
	Promoted	96.7%	3.3%	33
	chi square = .001 p = .981			

NS Not significant
* Significant at .05 alpha

comparisons, the relative standing of retainees was compared with their matched, but promoted counterparts who were a grade ahead. Thus, second year kindergarten retainees were compared to promoted first graders, and this method of comparison was carried out longitudinally. (Had the promoted group entered school in the same year as the retained one, the comparisons would literally have been same-year comparisons.)

In same-grade comparisons retainees were compared with the control group when they took the same grade level test. In other words, a comparison of performance was made on the same level of test but the retainees had an extra year of school.

Comparisons were made on Total Reading and Total Math NCE scores of the Stanford SESATI and Stanford Achievement Tests (SAT) Primary Levels 1, 2, and 3, that are administered in grades K, 1, 2, and 3, respectively. NCE scores were considered an appropriate score form as they allow meaningful cross-grade comparisons to be made when norm-referenced (SAT Norms Booklet, 1983).

To study longitudinal effects, multivariate analyses of variance were conducted separately in Reading and Math, with group (retained vs. promoted) as a between subjects variable and year of test (K+ 1 year, K+ 2 years, K+ 3 years), or grade at time of test (grade 1, grade 2), as a within subjects variable. When significant interactions were obtained, paired Bonferroni comparisons were performed with means of retained and promoted groups for a given year or grade.

Results

Tables 2 and 3 present the results of multivariate analyses for same-year and same-grade comparisons, respectively. Tables 4 and 5 provide the means and standard deviations of achievement scores in Math and Reading used in the same-grade and same-year univariate comparisons. Figures 1 and 2 provide graphical comparisons of NCE means for same-year and same-grade. The SESAT Reading scores of both groups from the first kindergarten year were not used in any of the analyses as these were employed in obtaining the matched sample.

Same-year Comparisons

Table 2 illustrates that significant multivariate between group effects were found in Reading ($F=3.38$, $p=.04$) but not in Math ($F=0.78$, $p=.46$). Both analyses yielded significant interaction effects. A close study of the means from retained and promoted groups reported in Table 4 and Figure 1 reveals the reason underlying this finding. It is evident that at the end of the retained year, the retained group showed a tremendous gain in Reading (+40 NCE) resulting in a between-groups difference that is statistically significant. In the second year, the gap between groups reduced markedly, with the retained group maintaining an advantage of 5 NCEs. In the third year, the small advantage for the retained group continues to hold but the differences are not statistically significant.

In Math (Table 4 and Figure 1), a similar gain is seen in the year after retention for the retained group, followed by a sharp drop that makes retained and promoted groups equivalent in the second year. In the

Table 2 Results of Multivariate Tests: Same-Year Comparisons

	Wilk's Criterion	F	p
Dependent Variable: Reading Years 1, 2, and 3			
Between subjects (group)	.9044	3.38	.04
Within subjects (group * year)	.5503	26.15	.001
Dependent Variable: Math Years 1, 2, and 3			
Between subjects (group)	.9761	0.78	.46 NS
Within subjects (group * year)	.4271	43.77	.0001

NS Not significant
NOTE: Univariate Repeated Measures ANOVAS were conducted to supplement the above analysis and are available on request.

Table 3 Results of Multivariate Tests: Same-Grade Comparisons

	Wilk's Criterion	F	p
Dependent Variable: Reading Grades 1 and 2			
Between subjects (group)	.9137	6.14	.01
Within subjects (group * grade)	.9212	5.56	.02
Dependent Variable: Math Grades 1 and 2			
Between subjects (group)	.6842	30.00	.0001
Within subjects (group * grade)	.8622	10.38	.002

NOTE: Univariate Repeated Measures ANOVAS were conducted to supplement the above analysis and are available on request.

Table 4 Univariate Group Comparisons: Same-Year

			Year 1	Year 2	Year 3
Dependent Variable: Reading					
Group:	Retained	Mean	73.68	50.46	50.76
		SD	11.18	17.95	19.50
	Promoted	Mean	33.23	45.51	43.40
		SD	15.76	19.13	14.43
	Significance		**	NS	NS
Dependent Variable: Math					
Group:	Retained	Mean	77.06	51.77	56.84
		SD	15.41	15.03	20.10
	Promoted	Mean	32.8	52.38	49.68
		SD	17.01	18.6	18.11
	Significance		**	NS	NS

** Significant at .05 Alpha

Table 5 Univariate Group Comparisons: Same-Grade

			Grade 1	Grade 2
Dependent Variable: Reading				
Group:	Retained	Mean	50.46	50.76
		SD	17.95	19.50
	Promoted	Mean	33.23	45.51
		SD	15.76	19.13
	Significance		**	NS
Dependent Variable: Math				
Group:	Retained	Mean	51.77	56.84
		SD	15.03	20.10
	Promoted	Mean	32.81	52.38
		SD	17.01	18.66
	Significance		**	NS

** Significant at .05 alpha

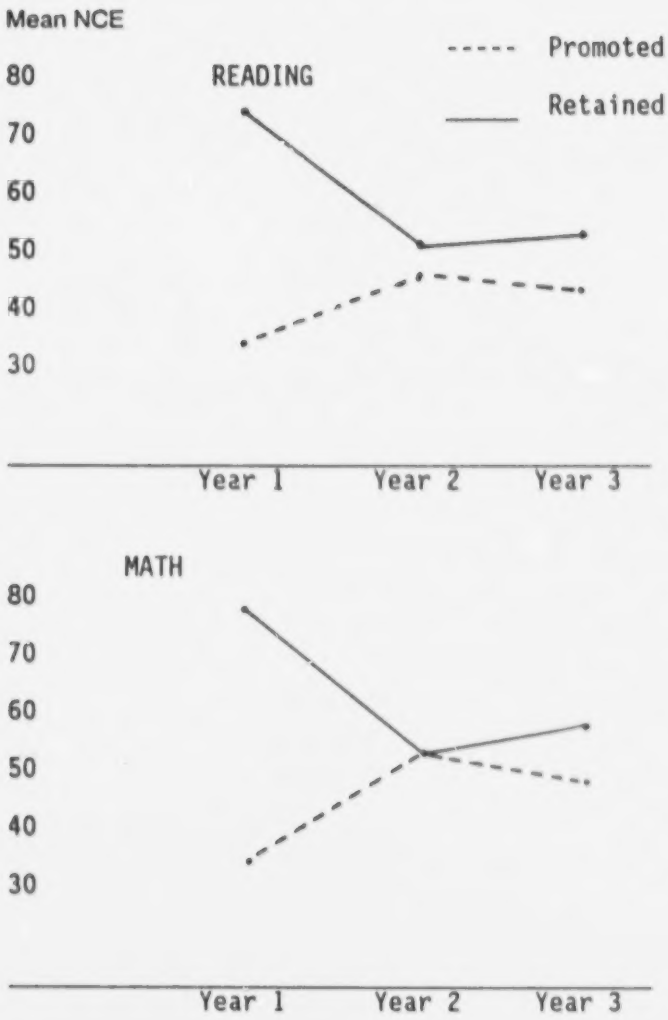

Figure 1 Mean NCE Scores of Retained and Promoted Groups on Same-Year Comparisons

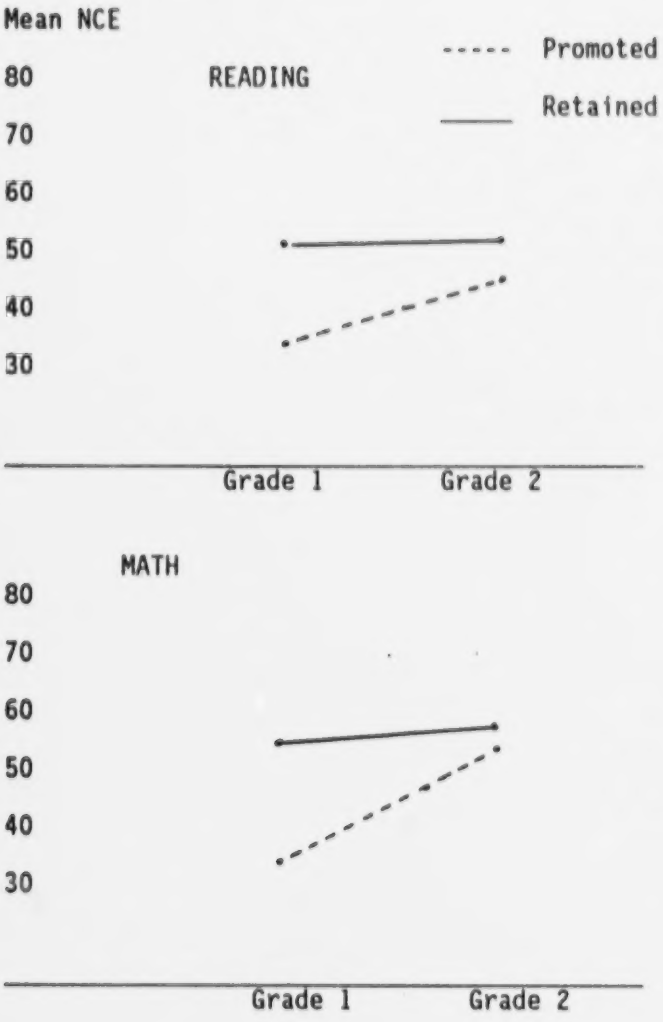

Figure 2 Mean NCE Scores of Retained and Promoted Groups on Same-Grade Comparisons

third year, the retained group shows a +7 NCE advantage over the promoted group.

Because the gain of the retainees from the first year diminishes so drastically in both subject areas, interactions in both analyses are significant.

Same-Grade Comparisons

The same-grade comparisons could only be conducted using first and second grade scores as the retained group had not completed third grade when the data were collected. However, the results of the multivariate analyses were similar to those obtained for the same-year comparisons. (See Tables 3 and 5.) Between groups multivariate effects were significant in both Reading and Math, as also were the interactions. Graphic comparisons (Figure 2) indicate that the retained group's superior performance is sustained from Grade 1 to Grade 2 in Reading. In Math, a similar pattern is observable.

Discussion

Considering that the promoted group in this study began with a small advantage on the cognitive measure, the results are in contradiction with past research that has concluded that retention is detrimental to long-term achievement. The outcomes show remarkable concurrence with those from the study by Peterson et. al. (1987).

On same-year comparisons in both subject areas, Reading and Math, it was clear that retained students perform much better than their promoted counterparts in the first year after retention. The picture changes in the second year, where the retained students' advantage drops. In the third year, the retained group is only slightly superior to the promoted group. In making policy decisions, this reduction in academic advantage needs to be assessed in light of the fact that the comparison group of promoted students was a year younger than the nonpromoted group, and the promoted group was also taking a more difficult test.

The same-grade comparisons provide some evidence that retained students were sustaining their relative standing over the two grade levels that were examined.

Bias in sampling procedures used in this study could have arisen from two sources. First, the treatment and control groups were taken from two different school years. It was assumed that since two-year kindergarten programs did not exist in the year from which the control group was taken, any differences between the groups not accounted for

in the matching could be attributed to differences in programs' goals and philosophies from one year to the next. As the latter was inseparable from the retention/promotion factor under examination, other differences were assumed to be negligible. In reality, differences could have also resulted from uncontrolled teacher and school variables that could not be matched due to practical constraints.

Second, the control group of promoted students started with a higher mean cognitive measure. This discrepancy arose because the distribution of SESAT scores for the promoted group was by nature very different than that of the retained group. Most scores of the promoted group were in the low to mid 400 range. The retained group, on the other hand, typically had scores in the 390-410 range. This difference made matching on this variable difficult, and gave the promoted group an initial advantage. Jackson (1975) referred to the problem of promoted students being inherently better than the retainees as a flaw in employing the matched-group design in retention studies. The improvement in performance observed in the retained group is particularly interesting in light of this fact.

Finally, the outcomes of this study underscore the possibility that an individualized educational plan during the retained year could be a factor responsible for the improvement in performance for retainees. Peterson et. al. (1987) found similar results in the Mesa Public Schools which also had an individualized program in operation. Further research is needed to ascertain the effects of such programs in the areas of social and emotional adjustment.

References

District School Board of Pasco County. (1987). Primary Education Program Manual.

Holmes, C. T., & Mathews, K. M. (1984). The effects of nonpromotion on elementary and junior high school pupils: A meta-analysis. Review of Educational Research, 54, 225-236.

Jackson, G. B. (1975). The research evidence on the effects of grade retention. Review of Educational Research, 45, 513-635.

Pasco County School Board. (1987). K-1 Curriculum Guide. Land O'Lakes, FL. Author.

Peterson, S. E., DeGracie, J. S., & Ayabe, C. R. (1987). A longitudinal study of the effects of retention/promotion on academic achievement. American Educational Research Journal, 24(1), 107-116.

Shepard, L. A., & Smith, M. L. (1985). Boulder Valley Kindergarten Study: Retention Practices and Retention Effects. Boulder Valley Public Schools. Boulder, Colorado.

Shepard, L. A., & Smith, M. L. (1986). Synthesis of research on school readiness and kindergarten retention. Educational Leadership, 44(3), 78-86.

Stanford Achievement Test Series. (9183). Multilevel Norms Booklet Manual. The Psychological Corporation.

Troidl, R. C. (1984). An analysis of the impact of retention on kindergarten children. Unpublished Doctoral Dissertation. Tennessee State University.

AUTHOR

MADHABI BANERJI. Specialist, Program Evaluation Services, District School Board of Pasco County, 7227 Land O'Lakes Blvd., Land O'Lakes, FL 34639

Acknowledgment: The author wishes to thank M. Barbery, M. Crosby, and L. Warther for their assistance in this study.